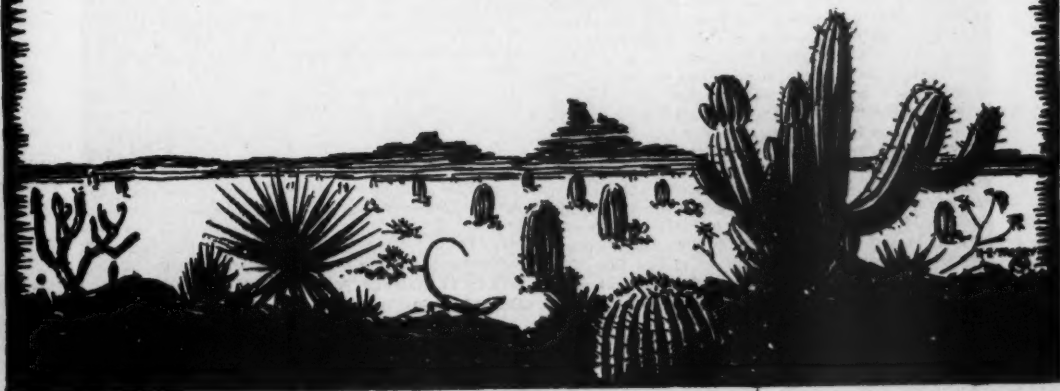


# CACTUS AND SUCCULENT JOURNAL

VOL. XXXII NOVEMBER-DECEMBER, 1960 No. 6



Fig. 86. *Ceplalocereus senilis* in Mexico. These are the plants you will see on one of the Convention tours next July. (Photo Prof. Juan Balme)



## CACTUS AND SUCCULENT JOURNAL

Published and owned by the Cactus and Succulent Society of America, Inc., 132 W. Union St., Pasadena, Calif. A magazine to promote the Society and devoted to Cacti and Succulents for the dissemination of knowledge and the recording of hitherto unpublished data in order that the culture and study of these particular plants may attain the popularity which is justly theirs. North and South America \$4.00 per year; foreign \$4.00 by money order. Mail application to SCOTT HASELTON, Editor, 132 West Union Street, Pasadena, California. Editorial Staff: The Entire Society. Mailed as Second Class, postage paid at Pasadena, Calif. Published bi-monthly and mailed about the 20th of every other month.

VOL. XXXII

NOVEMBER-DECEMBER, 1960 (Price 75¢)

No. 6

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## MEXICAN CONVENTION TOUR

For six days in Mexico, July 10-15, the approximate cost as a package deal will be \$150 single, \$225 double (transportation to Mexico City extra. Mr. Manuel Castella of the Mexican Society is the representative of the host society and will show us the Valley of the Old Men (cacti of course) and the fabulous cactus forests of Tehuacan. Information sheets and application forms will be sent to all members of the Society in November. Reservations and at least half the costs must be made by March 15. This is a brief estimate so you can save for the big days. Patricia Moorten, Executive Chairman, Palm Springs, California.

## DISASTER IN ENGLAND

Mr. E. Lamb, author of many cactus books, and owner of the rare "Exotic Collection" of cacti and succulents, reports as follows:

Your disaster has come as a shock—I too have a shock for you. I am at this moment fighting with the Fire Services to keep enough pumps going to save part of this collection from floods due to the heavy rains we have had this summer. An underground stream (almost a small river) has broken through and taken its path through part of this collection . . . it is a disaster and the trouble is nobody knows how long it will flow. Some books have gone for you . . . other are ready for packing and would have gone a week ago but for this sudden flood. More when I have time. Sincerely,

EDGAR LAMB

## FIRE

As the Journal was to go to press we had an unfortunate fire which took most of the stock of Abbey Garden Press. Journals of the last three years were lost and will have to be reprinted but in the meantime no back issues are available. Renewals of course will go on as of Jan. 1. All files and records were saved.

At first when we viewed the loss we were undecided whether or not to restock but after checking with our many friends we started shipping orders and in one day we were still able to fill thirty orders. Many items were lost entirely and some can be reprinted. Others were damaged and will be sold at a fire sale about the middle of February (watch the next Journal). If you are interested in obtaining perfect copies of any book, you should order now. Some editions will have slight blemishes such as smoke stain but otherwise the books are as good as new. A few will advance in price due to scarcity. The next issue of the Journal will report on the status of back issues of the Journal. Mr. and Mrs. Edgar Baxter will have charge of this salvage. My many friends can help me most by renewing their Journal promptly (there will be no special offers this year) and allow a little more time in filling orders. We will try to give out of town members a chance to participate in the fire sale; affiliates should send a representative to make purchases of quantity items for their members. My thanks to the many friends who have been most lenient at this time. Our plans for the next ten years are already made with more books than usual

SCOTT HASELTON

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUESTED BY THE ACT OF CONGRESS OF AUGUST 24, 1912. Of Cactus and Succulent Journal, published bi-monthly at Pasadena, for October, 1950. State of California, County of Los Angeles.

Before me, a notary in and for the State and county aforesaid, personally appeared Scott E. Haselton, who, having been duly sworn according to law, deposes and says that he is the Editor-Publisher of the CACTUS AND SUCCULENT JOURNAL, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Scott E. Haselton, 132 W. Union St., Pasadena, Calif.

2. That the owner is: CACTUS AND SUCCULENT SOCIETY OF AMERICA, INC.

3. That the known bondholders, mortgages, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None. Cactus and Succulent Society is a nonprofit organization and issues no stock.

GLENN O. GRIFFIN, Notary  
Oct. 24, 1960

## *Midget Mammillarias of Baja California*

By GEORGE E. LINDSAY

San Diego Natural History Museum

The cactus flora of Baja California includes a number of endemic species, among which are three midget mammillarias. These occur in isolated areas along the Pacific coast of the northern half of the peninsula. One has not been described. I have enjoyed opportunities to collect the three kinds and have them growing at the Natural History Museum. I would like to describe the new species and discuss the other two.

### *Mammillaria louisae* sp. nova.

Simplex interdum parce proliferans; mamillae breviter conoideae; areolae orbiculares, juventute parce lanuginosae, mox glabrae; aculei radiales ca. 11, horizontaliter divaricati, aciculares; centrales 4, infimo porrecto, ceteris radialibus subaequalibus; axillae parce tomentosae pilis setisque deficientibus; flores singulares, ca. 25 mm. diam., infundibuliformes, petalis oblanceolatis, roseo-carminibus; fructus clavaeformis; semina nigra, punctata.

ROOTS fibrous, with no distinctly enlarged tap root. STEM simple or occasionally branched, 1 to 3.5 cm. tall and 1.5 to 3 cm. wide, rarely to 6 cm. tall and 4 cm. wide. TUBERCLES terete, 5-6 mm. long, 4 mm. broad at the base, the axils bearing white felt when young but no bristles or spines. AREOLES circular, about 1.5

mm. in diameter, bearing white felt. RADIAL SPINES about 11, acicular, 5-7 mm. long, light tan, brown tipped. CENTRAL SPINES 4, cruciform, brown with darker tips, 8-10 mm. long, the lowest the longest and hooked, the upper three straight. FLOWERS in a ring about the crown, arising from the axils of the tubercles, closing at night but reopening a second day, to 3.5 cm. long and 4 cm. wide. Pericarpel scaleless. Perianth segments grading from small scales near the base of the tube to the inner perianth segments; outer segments olive to brownish green with light pink margins; inner segments 6-8, to 25 mm. long and 6 mm. wide, broadly oblanceolate, entire, with lavender-pink midstripe and white or light pink margins. Stamens many but not as numerous as in many *Mammillaria* species, the filaments 12 mm. long, white with pinkish blush under the anthers, the anthers yellow. Style 11 mm. long and 1 mm. thick, white at the base and pale pink above. Stigma lobes 6-8, acute, olive green 7-11 mm. long and to 1 mm. thick at the base. FRUIT clavate, red, to 2 cm. long and 4 mm. wide. SEEDS black, pitted, about 1.1 mm. long, 1.0 mm. wide, and 0.8 mm. thick, the hilum ellip-



Fig. 87. *Mammillaria louisae*, isotype specimen flowering at Stanford University April 28, 1955.

tic, 0.6 mm. long, 0.2 mm. wide.

**TYPE:** Near the beach 1 mile south of Socorro, Baja California, (near 30°18'N., 115°50' W.), Lindsay no. 2022, August 13, 1951, Herbarium of the San Diego Natural History Museum. Isotypes have been deposited at the Herbarium of the Instituto de Biología in Mexico, Dudley Herbarium, Herbarium of the University of California at Berkeley, and the U. S. National Herbarium.

**DISTRIBUTION:** Along the coast from Punta Baja to Arroyo San Telmo, Baja California, Mexico.

*Mammillaria louisae* belongs in the Subgenus *Eumammillaria*, Series *Ancistracanthae* of Schumann's classification. It is closely related to *Mammillaria dioica*, with which it grows, but lacks axillary bristles, differs in flower form and color—*M. louisae* is never dioecious—and the time of flowering. The plant, too, is very much smaller. *Mammillaria louisae* lacks the tuberous roots and obconical lower stem characteristic of *M. blossfeldiana*, has about 11 radial spines compared with 15-20 in *M. blossfeldiana*, and the inner perianth segments are larger, more acute, and are much paler in color. *Mammillaria louisae* blossoms while very small, less than two centimeters in diameter, and apparently at almost any time of the year. I have observed and photographed flowering plants in March, April, June, July, and November. In cultivation it produces one crop of blossoms after another. During periods of drought *M. louisae* shrinks well below the surface of the ground,

and the plants are to be found in little holes one centimeter or more deep.

This little plant was discovered in 1934 near Socorro, which is a ranch at the mouth of an arroyo of the same name, between San Quintín Bay and El Rosario. Mr. Ted Hutchison, his mother Mrs. Louisa Hutchinson, and I had stopped for lunch near the beach, when Mrs. Hutchison pointed out the very small pink-flowered cactus. The species is named in her honor. When not in flower *Mammillaria louisae* would easily be overlooked because it is very small, usually less than two centimeters in diameter, and deep seated in the ground. For more than twenty years *M. louisae* was known only from the sandsilt flats behind the beach bluffs at Socorro, where I collected it from time to time. In November, 1956, Dr. Helia Bravo, Mr. and Mrs. Charles Mieg, and I found the plant in flower and fruit at Socorro and also at the base of Punta Baja, in flats along a road from El Rosario to a lobster fisherman's camp at Datil. At the Punta Baja locality it grew with *M. dioica* and *M. blossfeldiana*, which is a heavier, tuberous-rooted plant formerly known only from its type locality at Santa Rosalia Bay, about 140 miles south. In the spring of 1960 Dr. Reid Moran found a single large plant of *M. louisae* at Arroyo San Telmo, extending its range about 40 miles north of the type locality. This specimen blossomed at the Natural History



Fig. 88. *Mammillaria louisae*, near Socorro, Baja, California, November 15, 1956.

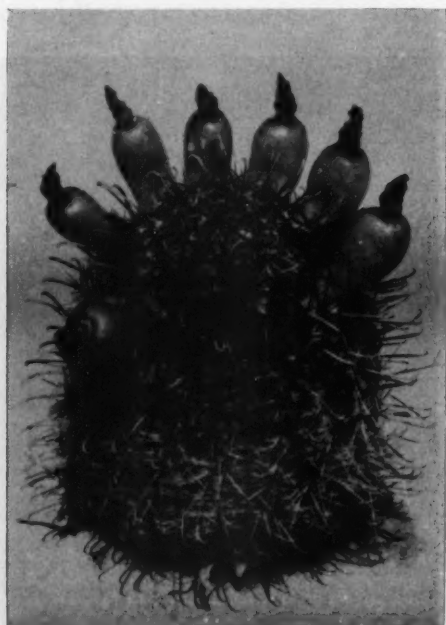


Fig. 89. *M. louisae*, isotype specimen with fruit, August 13, 1951.

Museum and is referable to *M. louisae*, but is 6 cm. tall and 4 cm. wide, and has three stems.

*Mammillaria dawsonii* (Houghton) Craig

*Neomammillaria dawsonii* Houghton, Cact. and Succ. Journ. 7:88. 1935.

*Mammillaria dawsonii* Craig, Mammillaria Handbook, 67. 1945.

**ROOTS** fleshy, usually a single tap root with branching rootlets. **STEM** simple or rarely with one or two branches, flattened globular, to 5 cm. thick and as long, only the flattened top usually appearing at the soil surface. **TUBERCLES** conic, about 6 mm. long and 4 mm. wide at the base, with milky sap. **AXILS** with sparse wool and no bristles. **AREOLES** round, small, with sparse wool in youth, soon becoming naked. **RADIAL SPINES** 6-10, 1-5 mm. long, acicular, radiating, horn colored with brown tip. **CENTRAL SPINE** 1, to 6 mm. long, stiff, slightly incurved at the apex and porrect below, light brown with darker tip. **FLOWERS** from old axils in a circle about the apex, funnelform, 12 mm. long and 6 mm wide. Outer perianth segments 8, lanceolate, acute, with brownish red midstripe and greenish yellow margins. Inner perianth segments 16, linear-lanceolate, acute, pale greenish yellow with oc-

casional brownish green midlines. Stamens with white filaments and small yellow anthers. Style greenish yellow, bearing 4-5 greenish yellow stigma lobes. **FRUIT** clavate, 15 mm. long and 5 mm. thick, pink above and cream or whitish below. **SEEDS** light brown, smooth, 0.8 mm. long and 0.6 mm. wide.

**TYPE:** Collected by E. Yale Dawson at the ocean front southwest of Punta Prieta, Baja California, 28°40'N., 114°12'W., June, 1933, and deposited in the herbarium of the University of California at Berkeley.

**DISTRIBUTION:** Known only from the type locality at the north end of Santa Rosalia Bay and along the coast for about twenty miles northward.

Yale Dawson was 14 years old when he made his first long collecting trip into Baja California in June and July of 1931. Then, accompanied by his father, he traveled as far south as Bahía Concepción. He probably qualifies as the youngest field collector to have worked that area. While digging specimens of *Mammillaria blossfeldiana* from gravelly bluffs above the beach south of Punta Prieta, he noticed a little group of tubercles barely protruding above the clay soil, and thus the species was discovered. A total of six plants were found in the immediate area,

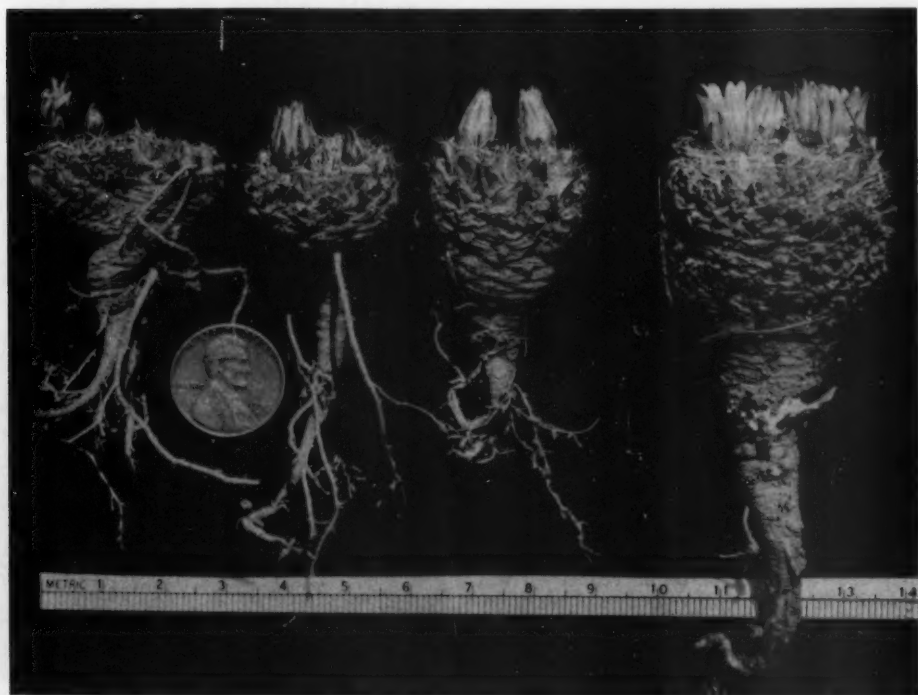


Fig. 90. *Mammillaria dawsonii* flowering on April 18, 1960.





Fig. 91. *Mammillaria dawsonii*, one and one-half times natural size.

but several hours additional searching, on that and subsequent trips, failed to reveal others. The species was named by Arthur D. Houghton in December 1935.

In March 1945, a Mexican friend in Punta Prieta told me of an unusual "chollito" near the beach several miles west of that village. There were no roads to the area, so we packed across the Columbia mountains to the beach, probably in the vicinity of a rocky point also called Punta Prieta. On March 7th I found the "chollito" to be an undescribed *Cochemiea*, which I later named *C. maritima*. We also found *Mammillaria blossfeldiana* and *M. dawsonii*, as I recall probably a dozen plants of the latter.

Twenty five years were to elapse before *Mammillaria dawsonii* was again collected. In April, 1960, a party from the San Diego Natural History Museum worked the area. My reason for returning was to secure plants and habitat photographs of the *Cochemiea*. In February I had scouted the coast by plane to try and locate the place where we had found the plants in 1935. From the air we could see a lobster-camp road which extended north from Bahia Santa Rosalia. With a jeep and the Museum truck we were able to drive easily to the spot on April 17th,

and on the following day found and collected several dozens of the deep-seated little *Mammillaria dawsonii* where it was fairly abundant, although inconspicuous, growing in crevices and slopes of a decomposed granite hill. Many were in flower, as were plants of *M. blossfeldiana*, and the accompanying photograph was taken at the time.

*Mammillaria blossfeldiana* Boedeker

*Mammillaria blossfeldiana* Boedeker, Monatsschr. Deutsch. Kakt. Ges. 3:209. 1931.

*Neomammillaria blossfeldiana* Gates, Cact. and Succ. Journ. 4:371. 1933.

ROOTS fleshy or tuberous. STEM simple or occasionally cespitose, globular to cylindric, to 5 cm. thick, the lower part obconic and deep seated in the ground. TUBERCLES short, conic, grayish green, to 7 mm. long and 6 mm. wide at the base, lacking milky sap. AXILS with scant wool and no bristles. AREOLES round to oval, 2 mm. wide, bearing some white wool in youth. RADIAL SPINES 15-20, 5-7 mm. long, straight, slender acicular, grayish white with dark brown to black tip, horizontally spreading. CENTRAL SPINES 4, 7-10 mm. long, the 3 upper ones acicular and straight, the lower longer, porrect and hooked, all grayish white at the base shading through purple to black at the tip. FLOW-



Fig. 92. *Mammillaria blossfeldiana* on seacoast near Punta Prieta, April 18, 1960.

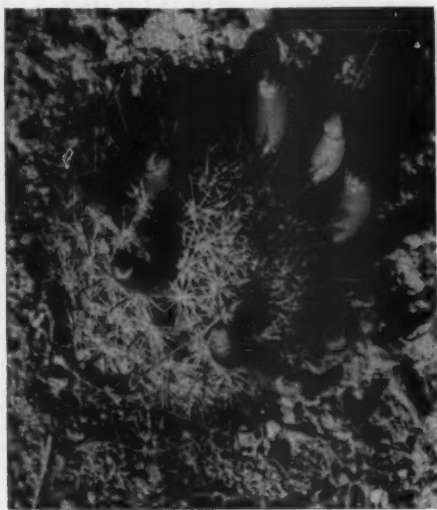


Fig. 93. *Mammillaria blossfeldiana*. Left; stem concealed by a single flower. Right; showing the red clavate fruit, Punta Baja, November 18, 1956.

ERS from near the apex, funnelform, 20 mm. long and 30-40 mm. wide. Outer perianth segments linear-lanceolate, 15 mm. long and 2 mm. wide, greenish with brownish red midstripe. Inner perianth segments wide-lanceolate, obtuse, rose-carmine with lighter margins, 15 mm. long and 4-5 mm. wide. Stamens with white or pale pink filaments and orange-yellow anthers. Style rose-pink, with 5-9 olive green to yellow stigma lobes to 10 mm. long. FRUIT clavate, 20 mm. long and 5 mm. wide, orange-red. SEEDS black, glossy, pyriform with small lateral hilum, slightly punctate, 0.9 mm. long and 0.6 mm. wide.

TYPE: Probably collected by Howard E. Gates in late August or September, 1928, or possibly in 1930. Mr. Gates supplied plants to Robert Blossfeld of Potsdam and presumably to Friedrich Ritter of Saltillo, both of whom in turn furnished the specimens from which Boedeker drew his description in 1931. Boedeker did not name the collector, but he said that the new species was a native in Baja California about  $28\frac{1}{2}^{\circ}$  north latitude. He did not indicate that a specimen had been preserved, but if none was then Boedeker's photograph should be considered as the type. When Gates transferred the species to *Neomammillaria* in 1933, he designated as "type" Gates 144, collected April 6, 1931, at Santa Rosalia Bay ( $28^{\circ}40'N.$ ,  $114^{\circ}10'W.$ ). This specimen is preserved in the Dudley Herbarium, Stanford University.

DISTRIBUTION: From Santa Rosalia Bay

to Punta Baja, on the west coast of Baja California, Mexico.

For many years *Mammillaria blossfeldiana* was known only from the type locality, where it grows in gravel-covered adobe hills along the coast. The little plants are deep seated and dark colored, so are inconspicuous among the rocks except when in flower or fruit. In November 1956, Dr. Helia Bravo, Mr. and Mrs. Charles Mieg, and I, on a short trip to Baja California, were surprised to find *Mammillaria blossfeldiana* in flats at the base of Punta Baja, southwest of El Rosario. We noticed the plants because the orange red fruits protruded from the ground. This extended the known range 140 miles northward.

In April, 1960, an expedition from this museum worked the coastal area north of Santa Rosalia Bay when *Mammillaria blossfeldiana* was in full bloom. Flats and slopes covered with gravel, the so-called "desert pavement", were spotted with the attractive pink flowers which usually concealed the entire plant. In some areas there were many plants in every square yard of the gravel.

The plant collections mentioned above were made under permits from the Mexican Government, the last of which was granted November 10, 1959, and signed by Ing. Alfonso Loera Borja, Director General of the Department of Forestry Permit Section. Some of the field activities described were carried on from the Vermillion Sea Field Station, which receives support from the National Science Foundation,

## SPOTLIGHT ON ROUND ROBINS

Round robins have been circling nicely the past months. Only two seem to be among the missing: Yuccas, Agaves and Aloes and C. & S. Robin No. 9. Several others, while slow, I hope will turn up later, for unavoidably, vacationing members and illnesses do slow down the flight of a robin at times.

For new members there are: Mr. Robert Long, Amherst, Massachusetts; Miss Eileen Davison, Hamilton, New Zealand; Mr. Fumio Sato, Kanagawa, Japan; Mr. Robert Sulenski, Hollis, New York; Mrs. Robert H. Wright, Salt Lake City, Utah. A cordial welcome to all of you.

Members are needed in the following robins: The Epiphyllum Robin, Euphorbia Robin No. 2, C. & S. Robins Nos. 6 and 7 each needs one member. Seed Propagation Robin No. 2, Stapeliad Robin, C. & S. Robin No. 5 needs two members each. The Succulents Only Robin No. 2, with two members waiting, needs five or six members. Also, if none of these seem to be just the robin you are looking for and you have a small collection of cacti or succulents or both, in window sill size, why not consider another of the popular window sill robins. There are three already and another could be formed. In joining a robin you meet other members of our Society and have a chance to talk over plants and plant problems with others. I'd be glad to hear from those who want to belong to one or more of these robins. Please state if you are a member of our Cactus and Succulent Society of America.

One of our members, Mr. Kenneth C. Bush, 60-62 Grace Street, Buffalo 7, New York, has inquired if there is anyone interested in exchanging tape recorded comments on cacti and succulents. In order to do this you should own a tape recorder or know of someone who does since you talk into a microphone to record what you want to say. The tape is then mailed to the one who is corresponding. The recipient plays it on his machine to hear what was said and then sends an answer back on tape. Anyone interested should get in touch with Ken Bush whose address I have given above.

Selections from the robins have been so good it is hard to confine them to the few chosen. Beginning with Window Sill Robin No. 3, which is a fairly new robin with members from Pennsylvania, Illinois, Texas, Colorado, California and Canada, Mrs. Laura Clowes from Colorado has a small and varied collection of cacti and succulents. One of the interesting things she wrote was this: "Instead of a window over my kitchen sink I have shelves lined with glass and lighted by fluorescent globe size 20 W. I had to have real plants to look at there and that led me to cacti. To my disappointment, succulents just won't thrive there. Opuntias so far haven't either. Most Echinocactus grow well and the Mammillarias. I have one Rhipsalis cereuscula, rice cactus, thriving there. Of course it isn't enough light to make cacti bloom but it brings out their spine color well and they are at eye level where you can see them best." Mrs. Theoda Haskell, the Canadian member, says in her letter, "I discovered my *Lenophyllum guttatum* (a member of the *Crassulaceae*) is blooming. The flowers are a mustard yellow. It goes well with the plant as it is a rusty green with leaves brown-spotted. It is a charming plant—one of my favorites."

In International Robin No. 5 Mildred Wellbaum, who lives in Oregon, says, "I have a nice large *Idria* and it hasn't shown any sign of leaves, so I took it out of the pot and potted in pure Black Magic and Blue Whale and it has put out eight leaves. I have read that plants that are starved will survive but oh what they do with a little loving care and good soil."

Black Magic is a potting mix containing among other things redwood leaf mold and Blue Whale is a fertilizer, for those who are not familiar with them. She is quite enthusiastic over the combination and says in another robin, Rare Cacti and Crests, "No more sand and gravel for me. My plants are growing so large I am having to move some of them to give others room, and it is all Black Magic and Blue Whale with a smattering of charcoal and sand. I've been starving my plants to death!" Another member in Int. Robin No. 5 is Wright Atkinson of England who wrote of the *Fraileas*, those tiny cacti, "According to the books, all *Fraileas* are cleistogamous. They MAY open flowers but only in very strong sunlight and then only for an hour or two. But they do seem to set seed quite prolifically. I have several and have collected quite a lot of seed from time to time, which germinates well. Problem is to know when it's ready, for the flower looks pretty much the same before and after opening time. So, if you've had a "bud" for a long time, I suggest you prod about a bit and see if there is seed there." Mr. Leslie Tookey, also from England, but in the Rare Cacti and Crests Robin, wrote in his letter, "Almost everything large enough has flowered including some *Copiapas* about 6" tall, one with vivid orange red flowers and the others yellow. They surprised me by throwing flowers on the stem, very near ground level, where it is very corky and scuffy, as well as on the new growth in the center of the plant." He spoke of rooting *Euphorbias*, writing, "I find the best method of rooting *Euphorbias* is to make a fresh cut, wash off the latex under a running cold tap (the latex seems to be the factor in preventing rooting) and plant directly in equal parts sand, soil and peat, keeping just moist. Once with a difficult one, I hung it in a shady part of the greenhouse and it formed roots without anything around it, but it took six months. Is growing well now. Why not graft on common *Euphorbia* stocks?"

From International Robin No. 2, Mr. Roger Moreton, another English member, has a novel system to care for his plants when he says, "I am in the electronics business so it is natural I should be trying to work out a system of entirely automatic control of growing conditions. I have used thermostatically controlled electric heating and this year I hope to get automatic watering installed. I am classifying the plants according to water requirements, into three groups, so the *Epiphyllums* get watered every time, the general run of cacti every other time and the rest every third time. This is not the perfect answer, but it will do for a start. The whole thing will be controlled by a soil moisture tensiometer which can detect when the soil needs water." Mr. Robert Long of Massachusetts, who has just joined this robin, wrote of his plants, "My collection is confined to a general one here in the greenhouse of the University. Several plants are giving color to it—my favorite (at the moment) is *Crassula falcata* with its head of scarlet-orange flowers. All the succulents are kept in the very warm part of the house and are given water whenever the tropics are tended to. Some of the *Epiphyllums* are kept in this house too but I have had better luck with them in a cool house in winter and then relying on the heat of the summer to bring them into bloom. Many of the *Mammillaria* have just finished blooming—*bocasana*, *elongata* and earlier, *pringlei* and a large species of *microcarpa* with many offsets. I generally water very liberally during the growing season, and due to the unsophisticated greenhouse man currently employed, my plants during the winter are not unaccustomed to a periodic flood. But this seems to have



no detrimental effect. I have never lost a plant from overwatering, believing that if the soil mixture is of the right consistency drainage will take care of the dangerous excess. Thus in potting I always err on the side of sand or grit. He replied to Annie Dixon, an English member who had written, "A good piece of research would be to work on the times of opening and closing of blooms," that "I think some work has been done on this but I know of no instance when it has been investigated in the cactaceae. I made an interesting note of *Portulaca* which I collected in the Ozark Mountains of Arkansas this last June, when they went on blooming for nearly two weeks in a plastic bag daily from about 10 to 4, closing at night."

From the new Mesemb Robin, Mrs. Ann O'Connell writes from her home in Missouri, "I am a collector of twenty-three years. I feel even though I have three greenhouses of plants, two for cacti, one exclusively for succulents, I still do not know all there is to know about these plants. At this time of year (July) most of my succulents are resting. The conophytums have a skin over them while resting and it peels off when the time is ripe for them to wake up, which is in about another month. You will have a nice spanking young-looking plant if you are fortunate enough not to have lost it from watering. They can not tolerate hardly more than a quick sprinkle when they hibernate. It is difficult to make anyone believe that the succulents rest in the summer. I have found also that high humidity with heavy watering will cause rot." She says she never sells but is willing to trade cuttings or rooted plants any time of the year. Also in this robin is Mr. Walter Goddard whose letter began, "I was just standing in my back yard in front of my succulent bed and admiring the dozens and dozens of silky yellow blooms on my mesemb and thought it was too bad the robin wasn't started, when there comes the mailman! I can see by the route list I am the only lucky one, who lives in a climate where the sun is shining on at least 330 days during the year. All my succulent are planted outdoors in an approximately 300 square foot flower bed. Watering is done exclusively with the garden hose. I can imagine that some of you will get goosepimples by hearing this but it shows how different the conditions are here in Southern California. As long as I have collected cacti practically all my life, I am much better acquainted with this plant family. I have approximately 500 to 600 cacti in my cactus bed, but this is more of a display. Only a small corner of this is covered with mesembs, but as I have had such wonderful success with this cute family I must say they grow particularly close to my heart. You can grow so many, many plants on a small area; they do so wonderfully if you give them sun and plenty of fresh air; they can be so nicely arranged to a natural-looking miniature desert and they thank you so gratefully for your efforts with their abundance of flowers. What else can you ask? Right now there are the following in bloom: *Pleiospilos neli*, *Pl. simulans*, (*Pl. bolusii* is budding), *Anacampseros* with the *Portulaca*-like flowers are loaded with fruits right now, then all the *Glottiphyllums* and last but not least, all the *Faucarias*. Also *Herreroa Dyeri*. The front part of my garden is fringed with several dozen clumps of all the different *faucaria* family, eight to twelve inches diameter, and it is really a sight to see them covered with the shiny yellow blossoms from the middle of July until November or December."

So, once again a robin review has come to its end. Shall be happy to hear from any of you who would like to join a robin. Write me before you forget.

Mrs. Gladys H. Panis  
P. O. Box 705  
Falmouth, Massachusetts

Editor's Note: Mrs. Panis collection escaped hurricane Donna which she describes, "All we could do is go to bed in the evening or try to read in the light of candles which I found was not easy. We lost trees but no roof, so perhaps should be thankful it was no worse. My cactus bed was out in all the wind pinned down with two sheets of plastic over it. I worried a little over whether it would not be in the next door yard by the morning but the plastic held, being low on the ground. When I took off the cover they looked just fine." While we are mentioning the Director of dozens of Round Robins, I wonder if anyone realizes all the time she devotes to this important work. In all these years she has never requested any help to defray costs of postage and supplies. Why not send her a note of thanks and a few stamps for a wonderful person? This especially applies to members of the Round Robins.—S.E.H.

#### CACTUS & SUGGULENT SOCIETY OF CALIFORNIA

After a short business meeting our President, Dr. Jay Dodson, gave us a talk on the U. C. soil mix. This mix as explained in the Journal contains peat and thirty mesh sand with chemicals to form a nutrient solution in the pH range (5.5-6.5) which succulents like. It was pointed out that after a few weeks a regular fertilizing program must be used with this mix. Hoof and horn had been previously suggested and used, however there seem to be some objections to its use in container grown plants. Mr. Al Irving reported that he had found fish emulsion (one tablespoon to the gallon of water) used at the rate of one cup to a medium sized plant every three weeks would give a quick pick up. Both Dr. Dodson and Mr. Irving agreed that Uremite put out by DuPont gave very good results, in fact, the best they have had. This talk brought forth more discussion from the club than we have had for a long time.

Dr. Dodson then gave us an advance showing of the I. S. I.'s September-October offering of plants. *Aeonium undulatum* raised from cuttings from a plant collected at the type locality in the Canary Islands, is not new but one of the largest and most beautiful *Aeoniums*. *Aloe jacksonii* promises to be a fine pot plant with beautiful coral flowers over a long period. *Bulbina latifolia* also makes a showy pot plant. *Echeveria spectabilis* is one of the harder *Echeverias*. It has as its name implies large showy flowers. *Huernia pendula* with red bell-shaped flowers is said to be one of the harder stapeliads.

The cutest, most intriguing, little ceropegia one can imagine is *Ceropegia rendallii*. It is deciduous, requiring no water in winter. For the people who like miniatures, there was *Adromischus herrei* resembling a dried raisin, *Conophytum saxetanum* and *C. minutum*. In the cactus field we saw *Mammillaria woburnensis*, a native of Guatemala, and *Wilcoxia poselgeri*, a native of Texas.

In addition to the I. S. I. plants, Dr. Dodson brought six plants in which the succulence is stored in the stem. The I. S. I. recently received over a thousand plants from Dr. Werner Rauh, a professor at the University of Heidelberg, who collected them in Kenya, Tanganyika, Solaliland and Madagascar. These plants made history by being the first over the North Pole. They left the Hamburg airport August 4th and arrived at the San Francisco airport August 5th. I saw one of these plants, a succulent coleus, a member of the mint family.

Mr. Al Irving also brought some very interesting plants to the meeting. Among them were three *Euphorbias* with Pan-American air express travel experience, a yellow form of "the crown of thorns", and two *Monadeniums*. After seeing all these plants I felt I could say "I've seen everything now".

MARAFRED GREEN

## High Center

By ED AND BETTY GAY

"Don't attempt to drive your passenger car south of San Quintin," was the warning of the Automobile Club of Southern California on their map of Lower California. We knew they weren't quite right, because we had visited San Quintin, 185 miles below Tijuana, several times and had driven our late model passenger car some thirty miles beyond that point. But—how much farther could we go?

For years we had both wanted to visit the peninsula of Baja California, the last true frontier of the Southwest. Our interest became even keener when we began collecting and studying cacti as a hobby, because few areas offer a richer variety. Reading Leslie Anne Mills' "Rugged Road to Cacti" in the May, 1958 issue of the Cactus and Succulent Journal and "Solo Below" by Don A. Hugh encouraged us to begin making definite plans for the trip.

Ideally, we would have travelled as the Mills did, in a Jeep or truck, and in the company of fellow cactophiles, but this was not possible. Besides, Ed found an irresistible challenge in the warning, "Don't attempt it." We discussed and discounted the possible dangers of the trip. The people of rural Baja California have the reputation of being among the most honest and friendly in the world. The rattlesnakes, coyotes and other wild life of the peninsula were no more than the familiar fauna of our Arizona childhood, which had also accustomed us to desert heat and desert roads. We counted several other factors in our favor, too. We had done enough camping to have settled on the minimum equipment for comfort and to have worked out fairly efficient routines. We both had a reasonable command of Spanish, and Ed's natural resourcefulness had been kept keen by experiences varying from boy scouting to his present motion picture studio work. Above all, we were able to plan at least six weeks for the trip and would not be pressed by a rigid time limit. In short, we felt that we would face only two real hazards—rain and high center.

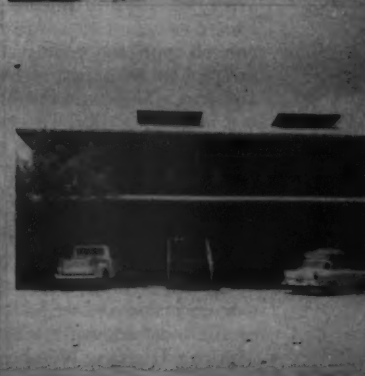
The high central mountain backbone of the peninsula, which the road repeatedly crossed and recrossed, would present steep grades which might require more than a passenger car's power. The "roads" themselves, often only trails

carved by trucks and jeeps, would have a rocky high center constantly threatening our radiator, oil pan, universal housing and gas tank. Rain could easily tie us up for two or three weeks in one spot, until the roads dried and the infrequent trucks once more forced their way through.

To have the best chance of avoiding the winter rains of the northern part of the peninsula and the summer rains of the southern portion, we elected to make the trip in May. The car we chose, as the best compromise between the higher clearance of older models and the better mechanical condition of newer ones, was a 1956 Ford six cylinder standard transmission business coupe. To prepare it for the trip, we had installed an electric fuel pump, new battery, and heavy duty shock absorbers. We removed the rear seat to decrease weight and increase space, and equipped the rear wheels with snow tires, whose broad surface and heavy tread proved invaluable over both sand and rocks. We loaded it with three spare tires, fifteen gallons of gasoline, thirty gallons of water, eight quarts of oil, a spare fan belt and other minor parts, camping equipment, a shovel and axe, two rolls of chicken wire for traction in sand, an a two-weeks' supply of canned food. Besides our own clothing we carried several boxes of used clothing and household articles kindly donated by friends and neighbors, to be given to people down the peninsula where such things aren't always easy to come by. These boxes were to perform double duty, as we hoped to arrive at La Paz with them full of cactus specimens both for ourselves and the University of Mexico. After the addition of cameras, skin diving equipment, binoculars, and a few reference books, the little car started out loaded to capacity on the morning of April 27.

Though the peninsula is only a thousand miles in length, we planned thirteen hundred miles of travel from Tijuana until we transhipped from La Paz to Mazatlan for our return on the mainland of Mexico. According to Automobile Club figures, the most direct road from Tijuana to La Paz covers 964.9 miles. In addition, we wanted to make a side trip to Bahia de Los Angeles and to cover the 250 mile loop

Left to right. Top: Campsite south of El Marmol. Chapel south of El Marmol. Choice of roads before dry Lake Chapala. Second row: Idrias near Desengano at turn-off to Bahia de Los Angeles. Detour near San Borjas. San Borjas. Third row: El Arco. Dry Lake 14 miles south of El Arco. Street in San Ignacio. Bottom row: San Ignacio. *Lemaifocereus thurberi* in lava rock 20 miles east of San Ignacio. French hotel in Santa Rosalia.



from La Paz along the gulf to Cabo San Lucas at the tip of the peninsula, and back along the Pacific coast route.

The trip really seemed to begin on the second morning as we pulled away from an Ensenada motel. Seventy-one miles farther, near the end of the pavement at Arroyo Seco, we stopped at one of our favorite spots, a cactus-studded hillside where we were able to collect small specimens of *Mammillaria dioica*, *Echinocereus maritimus*, *Myrtillocactus cochal*, *Ferocactus viridescens*, *Machaerocereus gummosus*, and *Bergerocactus emoryi* for our University of Mexico box.

In spite of the gradual deterioration of the road from this point and other stops for photography and exploration, over two hundred miles had been covered before we pitched our tent on the crest of a cliff overlooking the ocean south of Socorro. It would be nearly a month before another day's travel covered more than a fraction of this distance. Our camps were usually no more than thirty or forty miles apart. This fog-bound spot was also a contrast to the desert nights that followed. Knowing that this would be our last sight of the ocean for several days, we especially enjoyed the show that porpoises and pelicans provided while we ate breakfast.

In this area, while looking for additional specimens for the University, we had the pleasant surprise of finding two plants which we had overlooked on previous trips—*Ferocactus fordii* and *Mammillaria brandegeei*. At El Rosario, we enjoyed lunch at Señora Anita Espinosa's cafe, refilled the gas tank, and had the pleasure of a short talk with the lady herself. Partly because of her beautiful command of English, her place is a favorite stopping spot for Americans in El Rosario. Like all the other local residents whom we met on the trip, she was not at all impressed by our intention to drive to La Paz in a passenger car—people there do it all the time, in 1956 and older models, averaging about a week for the trip. They do have one important advantage in being familiar enough with the country to be able to travel with a bare minimum of food, water, spare fuel and parts. The consensus of opinion in our case was something like, "Si, señor, you can do it, but that is a lot of weight you have on the car. You will have to go very slowly and carefully—muy despacio." This was usually followed by helpful advice such as how to plug the oil pan with soap, or fortify the springs with yucca trunks, if the need arose.

Beyond El Rosario all pretense of road maintenance ended and we had our worst experience of the most annoying plague for travellers on Mexico's Highway Number One. We could not

travel fast enough through the silt-covered bottom land to escape the powdery dust that our tires threw up in a suffocating cloud which penetrated even through the floor of the car and the closed windows. Constant use of the windshield wipers was necessary to provide even a little visibility. What a relief it was to begin climbing into rockier terrain, and how quickly our discomfort was forgotten when we glimpsed the first of the tall cirio trees, or *Idria columnaris*, which are the hallmark of this section of Baja California. These huge cousins of the ocotillo of our own deserts were named "cirios", or "tapers", because of their resemblance to great candles when they are topped by their spring-time blaze of flowers. Not all stay candle-like in shape, though. Many spread into candelabra or snake downward and up again in strange, contorted forms.

For the next several days we lived in a glorious desert springtime. The nights were cold, the days windy, and threatening clouds massed overhead, in complete contrast to the expected heat. Night and morning campfires were not just enjoyable but downright necessary. At times the palo verde, mesquite and greasewood in the mountain-rimmed distance made us feel that we had simply dropped back a hundred years in time in our own Arizona desert, until the appearance of a *Pachycereus pringleii* instead of a *Carnegiea* would remind us that we were in an unfamiliar land. For a number of miles eroded granitic boulders resembled Joshua Tree National Monument, but elephant trees and cirios replaced the giant yuccas. Not until we neared Bahía de Los Angeles did the common *Fouquieria splendens* of California and Arizona give way to the more tree-like *F. peninsularis*.

Among the many desert plants, some familiar and others strange, were the quantities of cacti we had hoped to see—statuesque *Pachycereus pringleii*, long-stemmed *Machaerocereus gummosus* and *Lophocereus schottii*, confusing intergradations of *Ferocactus gracilis*, *californicus*, and *tortulospinus*, *Mammillaria dioica* and *brandegeei*, and several *Opuntias* including *tesajo* and a viciously long-spined *bigelovii*.

A deserted turquoise mine, the onyx mines at Marmol, abandoned copper and gold mines, and quartz dikes along the ridges of many hills assured us that this region had been, and perhaps still is, as rich in minerals as in plants and animals. We were constantly aware of the latter, too. Coyotes howled in the hills at night. Rabbits and little rodents were everywhere. On several occasions deer crossed the road in front of us or paused to stare curiously. We have never seen such quantities of birds—enough quail and doves to stock a hunter's paradise, and dozens of others, from hawks and buzzards to the tiny



humming birds who repeatedly dive-bombed Betty's red bandanna. Early one morning we even saw a half-congealed rattler, almost too cold to coil. And—just when it seemed that the desert was all our own, the presence of another sort of animal was likely to be announced by the distant tinkle of a cowbell.

The roughest, steepest, most difficult sections of road were found in this region, too. In the territory of Baja California del Sur a good deal of road work was in evidence, but between El Rosario and San Ignacio the motorist is almost entirely on his own. South of Catavina a volunteer roadworker, temporarily unemployed because of the seasonal shutdown of the onyx mine, was clearing rocks from the roadbed. He was subsidized to do this work by the truck drivers, who customarily each give him ten pesos when they passed through. Except for this one-man road crew, the truck drivers "build" the road simply by pushing through whatever path seems most feasible, often providing a choice of ten or twenty different trails across a valley floor.

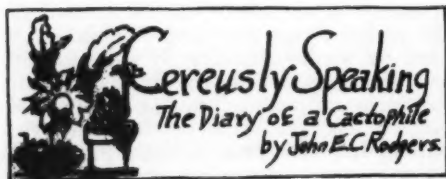
These drivers, or "vaqueros del camino" do a heroic job. Their huge trucks are the lifeline of the peninsula, hauling out cattle, goats, dates, huge live turtles from Bahia de Los Angeles, and the other products of the region, and returning loaded with a diversity of goods ranging from gasoline and canned food to soft drinks and folding chairs. They will always stop to render aid or simply to share a cigarette and to "platicar" about road conditions, politics, or whatever. We were privileged to see a fine example of courtesy and cooperation on the road as we clawed our way up the long, steep, rocky grade toward the crest of Jaraguay hill south of Catavina. Suddenly, the truck slowly grinding along just ahead of us came to a full stop, facing another behemoth from the opposite direction. The road at this point is just two tracks carved along the side of the mountain, with a steep slope above and precipitous drop-off below. Ed joined the truckdrivers in a smoke and conference as to how best to proceed. Then the uphill truck backed up a few feet and the men began moving boulders and earth from the uphill over to the downhill side of the road, widening it enough so that when one truck squeezed against the hillside the other was able to creep around it, with us following gratefully behind. We would certainly have hesitated to be the first to cross that shaky rocky ledge.

Ed had a happy respite from low gear and constant wariness, though, when we travelled for a few miles over the asphalt-hard level surface of Chapala dry lake, cutting figure eights and listening to the snow tires sing in a paean of joy as we buzzed across the surface at fifty miles an hour.

Though desert solitude was the hallmark of this section of our trip, some man-made features are worth mentioning. A short side-trip to Mission San Fernando was almost mandatory for dwellers in the San Fernando Valley of Los Angeles, and proved to be delightful. The mission has long been in ruins, but palms planted by the padres are still there. The abundant water supply of the valley permits several families to raise a good variety of crops. Near here, at Rancho Penjamo, we stopped for our first filtered gas. On most of the peninsula, gasoline is stored in fifty-gallon drums, siphoned out into five-gallon cans, and then poured or siphoned into the gas tank. The wise driver takes along an old felt hat or a piece of chamois skin for this last process, and it is amazing how many flakes of rust, bugs, and water droplets sometimes remain in the filter. This ranch was a cheerful sight, with the windmill whirling and water gushing out to irrigate newly-planted roses and crops. The young couple in charge had a fine crop of five sturdy children, too, whom we left enjoying a bagful of the candies we had brought with us. A sad contrast was soon afforded by Rancho Aguila. Beside a substantial-looking but deserted home we saw fences of ocotillo and prickly pear enclosing orchards, vineyards, and gardens—all dying of thirst while the windmill forced surges of water on the dry sand from a broken pipe. We wondered what calamity could have caused this desert oasis to be abandoned by those who had obviously once given it so much loving care.

The next morning we saw another pleasant example of loving care, in a little roadside shrine next to a pleasant roofed enclosure built for the use of travellers by some generous and thoughtful person. What a pleasure it was to meet the man responsible for this act of kindness, a Mr. Vasquez. We met his pickup truck a day or two later, and stopped for the usual chat. His information regarding road conditions was most valuable, and we were impressed by his efforts, as "delegado" of the area, to improve the condition of the local people and to be of assistance to travellers. When we offered him coffee, he thanked us and produced his own thermos. Gesturing toward the bed roll and other equipment in the truck, he smilingly said that all his friends teased him for travelling "like a gringo," but that he had learned to enjoy these little comforts while living in Arizona some years before. He also answered our question about the mystery of Rancho Aguila—the proprietor had died and the ranch was involved in litigation among the heirs, so that no one was looking after it, the cattle had been dispersed, and the whole place would likely soon be in ruins.

*To be continued*



Most of my Epiphyllums (true species) have been quite erratic this year. Last year the season began in late April and finished in early August. This year the plants are going to flower up to October. Buds began to show in mid-June. I used the same outside cultural methods with strong light, good air circulation and plenty of water through well-drained soil. I did not spray as frequently as in years past due to continued high humidity this year. Of course this has been one of the coolest spring-summers on record here. Lots of new growth has developed while cuttings have been rooted and grown successfully. Each year I check my bloom times for differences, etc. as I keep parallel columns for five year intervals at end of my 5-year diaries.

The flowering times of the true species of Epiphyllums are of special interest to me because of their relationship to my "Orchid Cactus" collection. The latter frequently finish their flowering period by mid-May. There are a few however, that do show a recurrence of flowering in late summer. The "Orchid Cacti" frequently inherit the weaknesses of the two strains crossed, as well as their strengths. When a third type is added to the other two strains, much chance of good or poor health, and diseases, are added. Diseases of the succulents interest me.

I have some species that have rotten spots in the stem. The same plant when kept in the greenhouse in strong sunlight and kept moderately on the dry side, does not develop the spots and grows normally. If too much damage has not occurred to the center rib, the stem develops normal above the scars. The younger shoots do not recover. One of these was a leaf cutting A-36 (MacDougall 1949) for several years and then it put out new shoots above on the stem but they died back. After six years it seemed to have developed a subterranean growth system from the original stem. Last August it sent out four fine shoots from below the ground level. Last year I hung it outside in late July when the wet season was over. It had limited watering. This spring I hung it out during the wet season and high humidity. The old trouble began again to the healthy late shoots of 1959. The plant was in the same place as it had been in 1959. I sprayed with lime sulphur twice after I hung it in full sun in the greenhouse. The younger shoots were lost and the older ones have developed normally. Its growth habits are much like the Cooperi complex. It likes a rich humus soil with powdered clay and sand mixed. Have I cured it? Shall I keep it inside? I'm not sure yet.

I have noticed that rotten spots appear in many Orchid Cacti as well as in the species. Lepismium commune, a Rhipsalis type, has brown spots on the new growth when hung in the sun or the shade. If it is cultural, it is strange that the same plant grows in the greenhouse during the winter with perfect form, but spots begin appearing as soon as spring approaches. I have cuttings from John Bock and the N. Y. Botanical Gardens in the same type of soil. So far, one outside and the other inside have no sign of spots. I'm watching these carefully.

Are there strains that are diseased and carry their own reactions the same as with some of us humans? I have made a study of some of my "invalids" and I feel

that our soils are not always to blame. Leached out minerals might be the answer. A tree penetrates the soil to great depths and brings minerals to its wood and leaves. Perhaps we should use more rotted leaf mold in some soils as an experiment. Perhaps our soils are to blame.

When I look over my collection I often wonder how many different greenhouses I need to visit to approximate the cultural notes I have collected. Is there a 100% foolproof answer to our needs? Everyone I meet in my travels admits some disappointments from Florida to California, and from Ohio to Massachusetts. When collectors visit me, they look at some of my plants with as much envy as I look at theirs. Evidently it is the challenge that makes us cactophiles and collectors.

Is the lowly Opuntia coming into its own again? I hope so. I'm one of those that like the Opuntias in all of their forms and sizes. I have several Southwestern tree-types that are approaching the four-foot height. They are not perfect specimens, just growing into a branched top. Outside of tipping over, they can be left in small pots. I counter-balance the pots with stones. Storage is no problem; perhaps that is one of their advantages.

I also have Pereskias and Pereskioopsis that climb to the roof and hang from wire hooks. These always remind me that there are some plant families that are of quite recent origin and help me to trace their evolution. You can keep them stunted or let them grow. I've done both. They are good greenhouse subjects because they like it hot the year around.

The results of my dryness campaign last fall, winter and early spring, which I have written about in previous articles, encourages me to use the same methods again. To date I've had more flowers on cacti and other succulents than in any other eight months of any previous year. Some flowered the first time for several years including Kitchingia, Kalanchoe, Crassula, Bryophyllum, Graptopetalum, Gasteria, Aloe, Huernia, Stapelia, Astrophytum, Monvillea, Selenicereus, columnar cacti, Arthrocareus, Lobivia, Mammillaria, Rebutia, Orchid Cactus, and Epiphyllum species.

I'm gradually acquiring Christmas and Thanksgiving Cactus varieties. There are a few that are reported to be white. I have two but the first one that flowered is a delicate pink. I wish more people had the color charts that the Epiphyllum Handbook (pages 50 and 51) recommends. The stems vary as to the number of teeth, some have very slight serrations while others are deeply cut. Some are stubby and others are long and slender. Some have bristles at the ends of the branches while others have a few at the base of the teeth. Some have woody stems and others keep branching from the base. Some have fruits with viable seeds and others have berries and aborted seeds. All require partial shade during the growing season. The flowers are of various shapes, sizes, and position. The plants all require good air circulation and protection from low humidity during the budding season. Over-watering is usually as bad as under-watering. I've been given several that have never flowered for the owners but without any change of soils I could bring them to flower during the regular time by letting them rest during late September and October.

Jim Rugh sent in a cartoon of a man putting on his suit of armour before going into his greenhouse to water his cacti!

H. O. Stockwell sent a clipping stating that the new Mexican highway from Sonoyta to Mexicali cuts through a "cactus forest".

## CULTIVATED AND NATIVE AGAVES IN THE SOUTHWESTERN UNITED STATES

AUGUST J. BREITUNG

1416 S. Glendale Ave., Glendale, California

PART 11

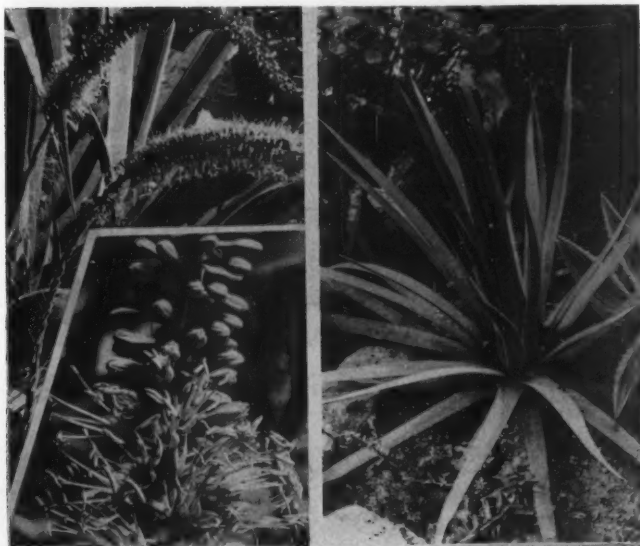


Fig. 94

Left: *Agave dasyliroides*; right: *A. dasyliroides* var. *dealbata*. approx.  $\frac{1}{6}$  natural size.  
Photographs by J. Marnier-Lapostolle.

### SECTION 5, CHONANTHAGAVE Berger

**Agave dasyliroides** Jacobi & Bouche, Hamb. Gart. Zeit. 21: 344, 1865.

Distribution: Guatemala, ingenious mountains near Quezaltenango.

Rosette single becoming polycarpic after flowering; leaves 80 to 100 in a dense rosette, linear, flat, very glaucous, 4 to 6 dm. long, 10 to 15 mm. broad from a dilated base, stiffly erect or slightly falcate, flat, finely striated longitudinally, margin entire, spine 1 to 2 mm. broad, 10 mm. long, brown; inflorescence a long dense, commonly recurving spike 1.5 to 2 m. tall; perianth 3.5 to 4.5 cm. long, tube broadly funnelform, 10 mm. long, segments yellow. Nov.-Feb.

**Agave dasyliroides** var. *dealbata* (Lemaire ex Jacobi) Baker, Gard. Chron. 2: 557, 1877.

*A. dealbata* Lemaire in Jacobi, Hamb. Gart. Zeit. 21: 346, 1865.

*A. intrepida* Greenman, Proc. Amer. Acad. 34: 567, 1899.

Distribution: Mexico, Morelos, Tepeoxltan 20 to 25 miles east of Cuernavaca (type locality of *A. dealbata*); El Parque above Cuernavaca (type locality of *A. intrepida*).

Distinguished from the typical species by longer and broader leaves (.5 to 1 m.) with microscopically denticulate margins. Living specimens contributed by J. Marnier-Lapostolle.

### SECTION 6, YUCCAEOFOLIAE, Baker

**Agave yuccaefolia** De Candolle in Red. Liliac. 6, pl. 328 to 329, 1812.

Distribution: Mexico: type cultivated in Europe; considered to be from Real del Monte, Hidalgo.



Fig. 95

*A. yuccaeifolia*. Left: leaf margin enlarged, showing minute prickles; right: rosette approx.  $\frac{1}{6}$  natural size. Photographs by J. Marnier-Lapostolle.

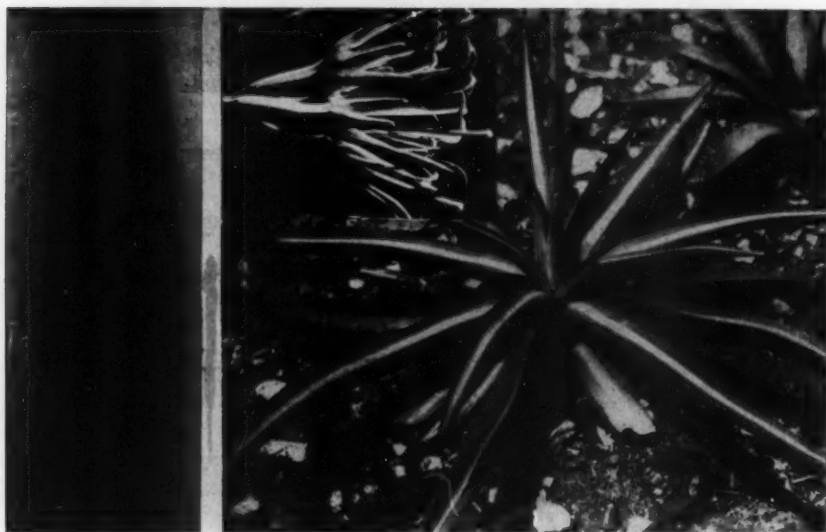


Fig. 96

*Agave nizardensis*. Left: leaf margin enlarged showing marginal prickles and conspicuous light colored median stripe; right: rosette approx.  $\frac{1}{3}$  natural size. Photographs by J. Marnier-Lapostolle; center: flowers from type. Photograph by Ladd Cutak.

Rosette short, stemmed or stemless, stoloniferous, 12 to 15 leaved, 1.3 m. in diameter; leaves rather soft, recurved 50 to 60 cm. long, 2.5 cm. wide, long-tapering, concave above, convex beneath, the upper surface glaucous-green with a conspicuous pale band down the center and round or oblong brown blotches, undersurface paler and unmarked; margin



minutely denticulate, spine brown, slender 6 to 7 mm. long; peduncle 2 to 3 m. long, including the short lax spike, flowers 35 m. long, the perianth segments linear-oblong, almost distinct. Living plants contributed by J. Marnier-Lapostolle.

**Agave nizandensis** Cutak, Cactus & Succ. Journ. 23: 143, 1951.

Distribution: Mexico; Nizanda, Oaxaca, the type locality.\*

Plant stemless, stoloniferous, rosette 4 to 6 dm. in diameter, loose, with few (10 to 15) leaves which are nearly horizontal, 2 to 3 dm. long, 2 to 3 cm. broad at base, acuminate flat above, convex beneath, dark green with a broad pale median stripe above, margin with irregular minute deltoil teeth, terminal spine weak, reddish-brown; scape slender, 1 m. long, bracts appressed, oblong-lanceolate, 2-3 cm. long, inflorescence a short spike 2 to 3 dm. long; flowers yellowish green, 45 to 50 mm. long. Now fairly common in cultivation.

#### SECTION 7, ANOPLAGAVE, Berger

**Agave bracteosa** S. Watson, Gard. Chron. new series 18: 776, 1882.

Distribution: Mexico; Nuevo León, type locality, near Monterrey.

Rosette 6 to 8 dm. in diameter, stoloniferous; leaves numerous, soft, light green, openly ascending with recurved tips, 27 to 30 mm. broad at base, 3.5 to 5 dm. long, caudate, margin minutely denticulate, spine absent; inflorescence 1 to 2 m. high, scape densely covered with outcurved narrow bracts, flowers in a dense spike, perianth cream colored, 2.5 to 3 mm. long including the ovary, persistent. June-July.

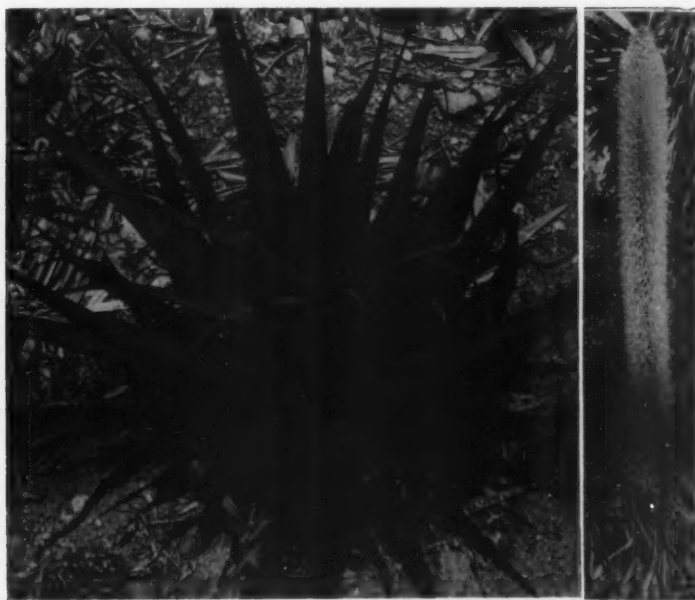


Fig. 97

*Agave bracteosa*. Left: rosette grown by Hayes Schlundt, Pasadena, California, approx.  $\frac{1}{6}$  natural size; right: inflorescence in Huntington Botanical Garden, San Marino, California, approx  $\frac{1}{10}$  natural size.

\*Tom MacDougall (personal correspondence, July 1959) gives the following additional information: "In the wild it (*Agave nizandensis*) appears to be of limited distribution and although I have known the plant for more than 20 years, my records show only three native habitat localities, viz.: Sto. Domingo Petapa, San Miquil Chimalapa and Nizanda. All three localities are in the Oaxaca section of the Isthmus of Tehuantepec and vary from about 30 miles (in direct lines) one from the other. Habitat altitudes are between 170 and 340 m."



Fig. 98. *Agave nizandensis* growing on a rocky hill at the edge of San Miguel Chimalapa. Note the Chimalapa, Oaxaca, taken from the location of the picture on the left. San Miguel is one of two villages which form a fragment of Soque Indian culture, long since isolated from the parent group in eastern Chiapas. Photos by author Feb., 1941.

## *Agave nizandensis* - A Reintroduction

T. MACDOUGALL

It was in the Nizanda\* "Rock Gardens," in Feb. 1947, that Lad Cutak collected this little, aloe-like agave. Later, he described it from a plant flowered in the Missouri Botanical Garden.

The type locality is not the only habitat of *A. nizandensis*. Indeed there was a description, in manuscript, based on an earlier collection, in which I understand the author proposed the name "aloeifolia." Nevertheless, the actual name has much to recommend it, and altho the species is not confined to Nizanda it is abundant there.

Nizanda, by the way, is a Zapotec Indian village. The name, in Zapotec of the Isthmus, signifies "hot water." Hot, mineralized springs there are famed locally for the relief of rheuma-

tism, as well as for many other ailments to which the flesh is heir.

For many years, *A. nizandensis* flowered regularly both at the New York Botanical Garden and at 4000 Boston Road. Nowadays, little if anything is seen or heard of it. All in all, it can hardly be said that it was "introduced to cultivation."

It was to remedy this situation that, in Nov. 1957, the writer collected seed from the wild. About 1 lb. of clean seed was secured and sent to growers in California.

EDITOR'S NOTE: The ISI offered seedlings at \$1.25. Plants are still available at 921 Murchison Dr., Millbrae, Calif.

### PRESIDENT'S MESSAGE

The Annual meeting of the Cactus and Succulent Society of America, Inc., held last September 11th, at the Franklin Crosby Cactus and Succulent Ranch in Malibu, was very well attended, in spite of its being an extremely hot day. Those who attended this sea-coast garden were especially rewarded by cooling breezes and a well shaded meeting place. Don B. Skinner, the speaker of the day very graciously withdrew and instead presented Mr. Harry Butterfield of Berkeley, an outstanding Show Judge, a publisher of many books and pamphlets and an interesting speaker. Door prizes and Raffle plants went to many members and the money raised more than paid for the chair rentals, free cokes and the fine plants.

A special Board Meeting, held the later part of October, will consider the final changes in the Society By-Laws and hear the reports from our wandering members, Pat and "Slim" Moorton and Hazel and

Harry Johnson who have just returned from Mexico after conferring with members of the Mexican Cactus and Succulent Society and doing a dry run on the proposed Field Trips for the 9th Biennial Convention to be held in Mexico during the early part of July, 1961.

Every one planning on attending this Convention should try and obtain the fine free book, "Mexico and Central America" put out by the American Automobile Association (AAA) for the exclusive use of its members. If you are not a member, try and find someone who is, and see if they will obtain a copy for you. The information and suggestions for the tourist contained therein will be a great help to any one visiting Mexico for the first time, or, for the second or third time also.

Our Recording Secretary, Mr. William Bently has moved (for the last time, we hope). The new address is 18317 Farjarno Street, La Puente, California.

EDWARD S. TAYLOR, President

## DESERT FLOWERS UNDER GLASS

*The story of my experiences and delight in growing and flowering Cacti and Succulents in a small glasshouse in Christchurch, New Zealand*

By MARJORIE E. SHIELDS

### KALANCHOES AND BRYOPHYLLUMS

In September and October the Kalanchoes take over. These differ from Bryophyllums in that they do not produce plantlets round their leaf edges or on their heads; nor do they hang their flowers like bells, but lift them to be filled with sunshine. Like Bryophyllums their blooms are four petalled but instead of popping out of bladder-like calyces, these blossoms break from the end of a tube. The beauty of some of the plants, as we also saw in Bryophyllums, is somewhat marred when the flowering stem takes over. This is very noticeable in *K. marmorata*—"marbelled and patterned like marble"—a *Kalanchoe* from Eritrea and Abyssinia. It is a beautifully marked plant with thick, broad serrated leaves mottled with purple and finely dusted with powder. The leaves ascend the stem in pairs, each pair at opposite angles from the one above and below. The formation is perfect. But as the stem elongates the leaves lose some of their beauty and then attention is focused on the quaint but beautiful blossoms. The first time this flowered I was most intrigued. When the stem reached about 15 inches in length three buds appeared each on a separate two inch stalk. After the buds had grown into four inch long furled tubes, the ends unfolded into four long pointed cream petals, with beautifully waved edges. In front of it is *K. maculata*, a very immaculate looking plant; each leaf with blended colours of pale green, pink and blue, thickly dusted with powder and with minute scalloping round the edges. They fold towards each other like the leaves of a book, giving it the popular name "the pen-wiper plant". But who would dare wipe their pen on that exquisite pen wiper! But look! Someone has already done so and they were using purple ink! See the splodges it has left? Very occasionally stains do appear on these leaves but not to the same extent as on *K. marmorata*. There is another similarity between these two plants, the flowers are somewhat alike. *K. marmorata* holds large altar candles, but *K. maculata* gaily flutters many little birthday candles, all in cream. This plant never grows tall but produced many penwiper rosettes on short stems and needs a wide pan to accommodate it. These two plants do not flower very readily, as they are frost tender, and their blossoms coming as they do so early in the spring, the buds so often get nipped.

A *Kalanchoe* with brilliant winter colouring is *K. granata*. The thick fleshy leaves are deeply

scalloped and as the colder weather approaches they turn crimson and the colder it grows the more they seem to glow until the whole plant becomes absolutely brilliant, with the exception, of course, of any new growth, which naturally is green but the backs of these leaves and the edges turn red also. With such glorious colouring one would not expect a spectacular flower, so the compact head of small yellow blossoms is not really disappointing. The leaves never lose all their glowing colour. Even in summer when the plant is in full growth a certain amount of red still paints the green leaves.

Here is another very different from the others. *K. thyrsiflora* from the Transvaal—lovely as a seedling when the largish, broad, snow white leaves, flushed with pink, fold together, like a pair of folded hands. The whole plant is thickly powdered with white and when the flower stem begins to rise from between the folded leaves of the rosette, this too is white and so it has remained, all the 3 ft. length of it, the top nine inches thickly packed with round white balls. These open to reveal a four petalled cream flower on a short, fat, pale green tube, also liberally whitened and against which the petals recurve as the flower matures. The little tube filled with white protruding stamens is held by a slightly deeper green calyx, a short stalk attaching it to the main stem. The whole flower head is so white and the flowers packed so tightly against the stem it is difficult to see whether the blossoms are really there. This is a most interesting *Kalanchoe* and now after six months there are still a few blossoms to be seen intermingled with seed pods and tiny plantlets! It would appear that *Kalanchoes* if left will produce plantlets on their flower heads after all!

*Kalanchoes* are variable in size. From the 3 ft. length of *K. thyrsiflora* to a ground cover of *K. flammula* from Somaliland. It grows like a weed. The small rounded green leaves, smooth, edged and coming to a little point, fall at the slightest touch, rooting where they fall. Seedlings sprout up in all the surrounding pots. Nevertheless the plant is worth growing, for the clusters of bright flame coloured flowers on long thin stems, sway about amongst the other plants, adding their touch of colour and looking so gay. Odd clusters of blossoms appear at all times of the year. Look how the blossoms twist as they mature, strange isn't it? The dried seed heads which turn an attractive soft purple are most decorative. Several grown in one pot



Fig. 99

Top row: *Kalanchoe maculata*, flowers of same, *K. granata*. Second row: *K. flammea*, *K. beharensis*, *K. orgyalis*. Third row: *K. quartiniiana*, *K. laciniata*, *K. grandiflora*. Bottom row: *K. tomentosa*, flowers of same, *K. longiflorum*.



make a good display.

That is all on this side of the bench so let us see what we can find on the other side. First there is *K. beharensis* from Bahara, Madagascar. A most handsome plant growing much too large for the bench. The huge thick leaves, khaki suede on the upper surface, glistening with gold where the sun catches them, and lined with the palest green flannelette underneath, are commonly referred to as elephants ears which they resemble. Rarely are there more than six to eight leaves on a plant at a time, for as a new pair appear, the bottom pair wither and fall, leaving a quaint pattern on the whitish stem. These leaf scars are most decorative. It has not flowered yet but some day I hope it will.

*K. orgyalis* from Madagascar also has khaki leaves, but they do not attain the proportions of *K. beharensis*; they are smooth edged, pointed at both ends and widening in the middle. The head of orange flowers is typical of many *Kalanchoes*. The stately growth, the clean cut leaves and their lovely colour are the better parts of this plant.

Then comes *K. grandiflora* from Tropical East Africa and the East Indies. A tall plant with a grand head of flowers, each individual blossom being much larger than is usual for a *Kalanchoe*. Orange in colour and sweetly scented. The seed heads when dried are most ornamental. Once again it would appear that when the flowers are attractive the leaves are insignificant. These are small, bluish and rounded with scalloped edges.

*K. welwitschii* now known as *K. laciniata* has much more attractive foliage. The leaves are lacinated—that is they are “narrowly incised or slashed, having the margins cut into deep, narrow lobes”. And that fully describes them and points to the reason for the name change. The colouring is glorious—deep purple with the new leaves so softly green—a striking contrast. The orange flowers are small, but attractive against the purple foliage.

Next to it is *K. dyerii*. And here is another name change for this one is now *K. quartiniana*. Are those flowers crimson or just deep red with a dash of pink? The texture is soft as velvet. How lovely they look against the dark green foliage. These blossoms are fairly large and arranged in a loose head. So, too, are those of *K. kewensis*. This large head of flowers is bright glowing pink—cerise pink, a lovely shade, and the individual flowers are large with beautifully waved edges. Being displayed on longish stalks they give the inflorescence a loose graceful appearance, and as the main stem to which they are attached is nearly 2 ft. in length these large heads of blossom weigh it down so that it bends and nods to the plants beneath it. And aren't these bright pink flowers and the red

ones of *K. quartiniana* a change from all the golden ones in which this group delights?

Another good pot plant found surely in all collections is *K. tomentosa*, the “poker work” plant, so named because the leaves are decorated with poker work round the edges. It is most attractive, as the whole plant—leaves, stems and even the flowers are covered with a mat of white woolly hairs, with tufts of brown along the edges of the leaves. This plant has not flowered for me but it will in time. I have seen a plant in flower and have photographed it. Because it was grown on a sunny window sill the flower stem became very elongated, but little bunches of flowers appeared at the axil of the leaves and the stems, furry coated on the outside, chocolate brown inside, to match the poker work. There was no tube, which is unusual for a *Kalanchoe*—in fact it looked more like a *Bryophyllum* bell. Having been grown on a window sill the formation of this inflorescence may not be typical but the individual flowers would be correct. It was an achievement to have flowered it at all under these conditions.

*K. longiflorum* from Natal revels in the hot sunshine and the hotter the sun the more ornamental will be the flame coloured deeply crenulated leaves. The long angled flower stems topped with lemon yellow smallish flowers—though the tubes are longer than some, are rather disappointing, as the colour does not blend as well as it might with the very gay leaf colouring. The plant branches from the base so requires a good sized container. It eventually makes quite a lovely little shrub. Next to it is *K. somaliensis* from Somaliland, with a fine head of blossom. These flowers have a tube an inch in length, pale green at the base shading to deep cream, almost yellow. The long cream petals curl back gracefully to show the deep yellow centre. This plant with its leaves more blue than green, contrasts well with the autumn tinted ones of *K. longiflorum*; the leaves on both plants being similar in shape but of totally different colouring.

That brings us to the end of this most interesting group, with its plants of various shapes, sizes and colourings, both amongst the leaves and the flowers, and we have seen they do not all have orange flowers. We have found cream ones, lemon, cerise, crimson, flame, red, chocolate, pale green and a two toned one as well. They should be popular and in every collection. Certainly they need a little more care and attention than many other plants, but we are well rewarded for what we do for them. Meales attack them if they are not kept growing and they do need a little water during the winter when the buds are forming or if they are flowering. But care is needed as most are very frost tender.

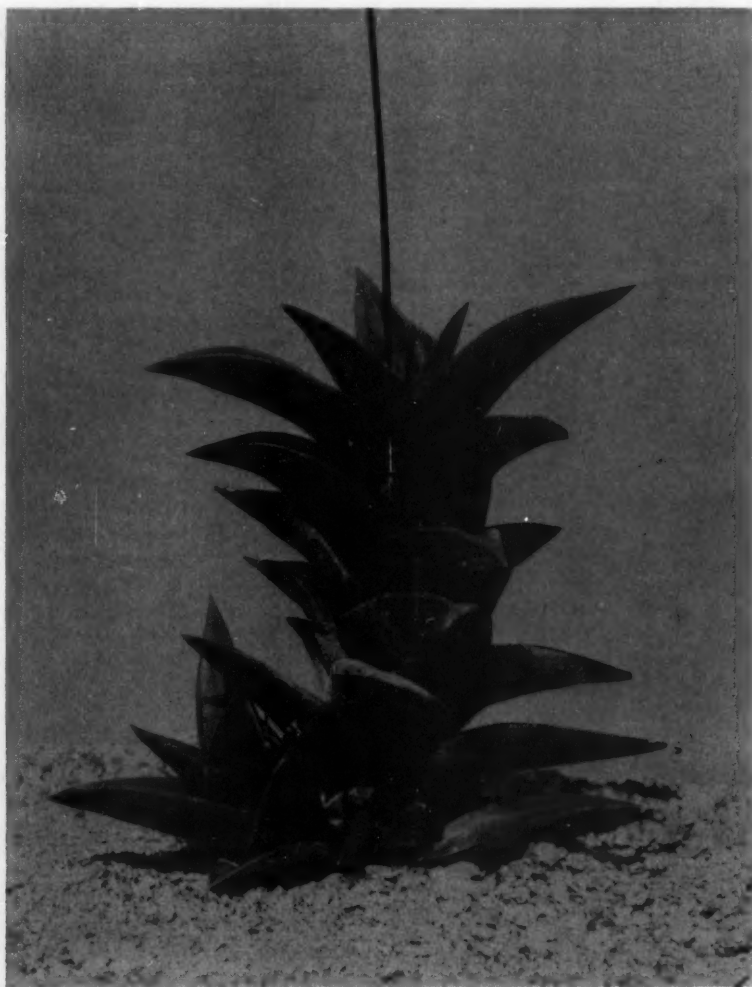


Fig. 100  
*Haworthia beanii* G. G. Smith nat. size

## Notes on *Haworthias*

J. R. BROWN

*Haworthia beanii* G. G. Smith in Journ. So. Afr. Bot. X (1944) 137, Pl. IV & fig. I.

Plant with erect leafy stems, 8 cm. tall, 6.5 cm. in diam., proliferous from the base.

Leaves spirally trifarious, imbricated, spreading, recurved, 4.2 cm. long, 18.5 mm. broad below mid-leaf, 5.5 mm. thick, the sheathing leaf base extending about 6 mm. beyond stem, somewhat ovate-elliptic, acuminate and cuspidate; face of leaf concave, minutely scabrous, dark green becoming reddish towards tip; back

of leaf rounded, triangular towards tip, minutely scabrous, dark green becoming reddish-brown near tip; keeled in the upper half, acute and conspicuous towards tip; margins acute towards the base becoming blunt above, reddish-brown.

Locality: South Africa: Cape Province; Humansdorp Distr.

Named after Mr. Guy Bean on whose farm, about 6 miles N. E. of Patentie, this *Haworthia* was collected.

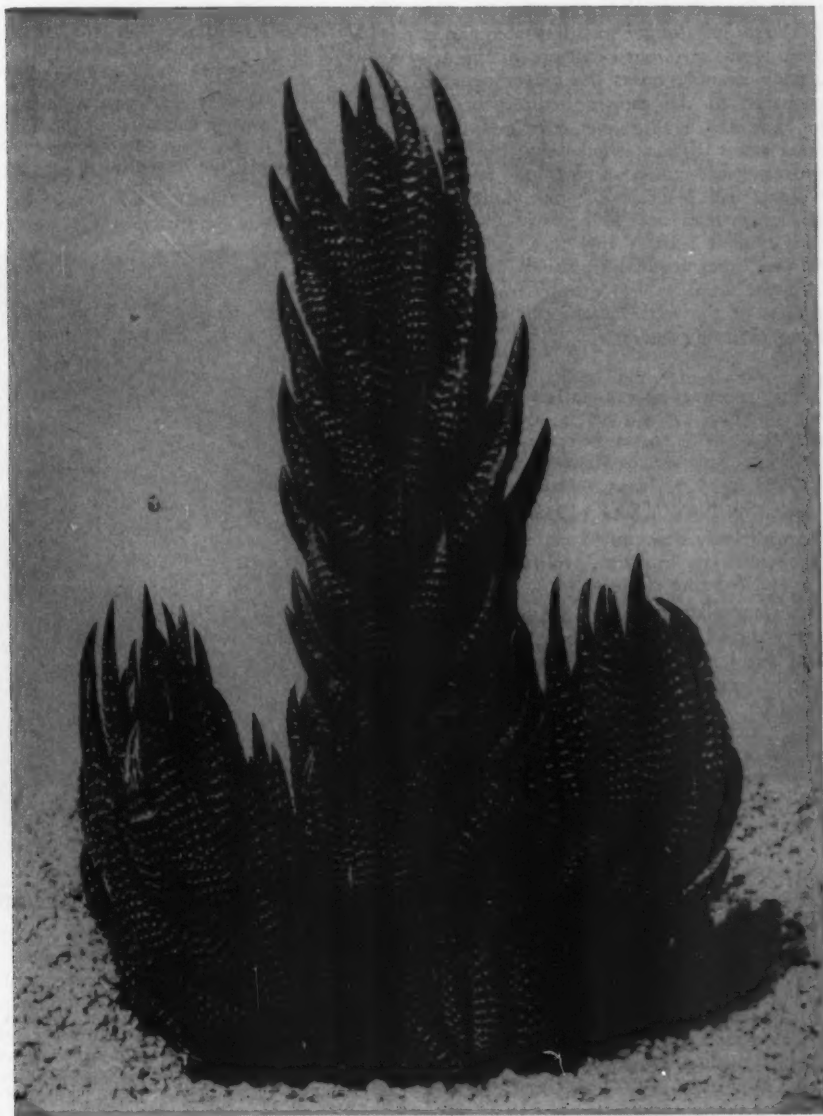


Fig. 101  
*Haworthia reinwardtii* var. *fallax* nat. size

The plant shown in the illustration of this *Haworthia* is a division of the clonotype sent to Mr. J. W. Dodson of California by G. G. Smith. It is growing very vigorously as the uppermost leaves indicate and thus shows somewhat larger dimensions than in Smith's description. The leafy stem about 7 cm. in diam. at the broadest part, with leaves to 4.5 cm. long, to 23 mm. broad and to 8 mm. thick. In cultivation the

color is a very dark green and it was noted that the leaf margins differ, one margin being somewhat rounded and the other distinctly flattened. The whitish appearance on the lower leaves is due to fine dust particles, as the leaves of most of the plants of the sect. *Trifariae* seem to be more or less viscous at some time and this dust adheres so tightly that it cannot be washed off by ordinary means.

In this Journal, XXXI (1959) 150, *Haworthia bearii* var. *minor* was illustrated and at that time it was mentioned that one of the distinguishing characters was the longer pedicels as compared to the shorter pedicels of the species, however having now examined three flowering stems of *Haworthia bearii* the pedicels on one stem were 4.5-5 mm. long and the other stems had pedicels 8-9 mm. long, the pedicels longer than those of the variety, so that, in cultivation at least, many floral characters vary so much they are of little value.

*Haworthia bearii* is very distinct from other *Haworthias* of the sect. *Trifariae* by the long spreading recurving leaves.

*Haworthia reinwardtii* var. *fallax* Poelln. in Repert. Sp. Nov. XLI (1937) 309, in Cact. Journ. VI (1937) 36, in Beitr. Sukk. u. pfl. (1940) 43; Resende in Mem. Soc. Brot. II (1943) 83 fig. 32b. *Haworthia fallax* Poelln. in Repert. Sp. Nov. XXXI (1932) 83.

Plant with leafy stems to 15 cm. or more in length, about 4 cm. in diam., proliferous from the base and forming clusters.

Leaves lanceolate-deltoid, 3.5-5 cm. long, 10-12 mm. broad towards the base, ascending, incurving and terminating in a very short white or brownish mucro, shining, deep green to reddish-green; face of leaf flat or with 1-3 somewhat raised lines, smooth or sometimes with a few scattered tubercles; back rounded, keeled towards the tip, and with 5-7 or more obscure, green immersed or slightly raised lines which never reach the apex and with numerous white, shining, often oblong and confluent tubercles more or less transversely arranged and sometimes confluent in transverse rows.

Locality: South Africa: Grahamstown.

Subsequent localities given by von Poellnitz extend from Alexandria to East London.

A note by von Poellnitz states that the tubercles often coalesce in transverse rows similar to *Haworthia fasciata* (Willd.) Haw.

A rather distinct *Haworthia* of the sect. *Coarctatae* by reason of its color and the arrangement of the tubercles.

#### ECHINOPSIS IN CALIFORNIA

After reading and enjoying the photograph and article entitled "Echinopsis in New Jersey", I wanted to present to the readers my showing for this year. It was the most thrilling sight to behold when all twelve blooms showed on the same day. It was a phenomenal experience waiting all night long to see if by morning this would really happen. Prior to this year the blooms had varied from two, three to six in 1959.

The case history is much the same as reported in the New Jersey article. My plant is about twenty years old and was given to me seven years ago at about half

the present size. The former owner could not remember it ever having bloomed. This is called "Los Angeles hybrid" and is completely spineless.

Since I am amateur in the cactus world, the excitement of this one plant has led me to develop cactus and succulent gardening as a hobby. According to experts I have consulted and research, this *Echinopsis* rarely has as many blooms as twelve at one time.

JOSEPHINE BRACHMANN, Los Angeles



Fig. 103

#### A SAINT FOR GARDENERS

By DAVID B. GRIGSBY

This unusual shrine of Saint Fiacre (Fee-ock-er), protector of gardeners, charmingly decorates a portion of the Baker Cactus Nursery, 1531 N. Vineland (at Francisquito), Baldwin Park, California. George and Vera Baker purchased the cast stone reproduction of a Metropolitan Museum art treasure instead of a more popular Saint Francis as the gardener's Saint seemed more appropriate. George built the shrine out of rough redwood and Vera tastefully decorated it and the surrounding area with carefully chosen cacti and succulents. The clean healthy condition of the Baker plant offerings has led many of their customers to comment that the Saint must be lending a helping hand.

Saint Fiacre, a 7th century anchorite of noble Irish descent, is shown in the 15th century alabaster relief with his spade and pouch for seeds or bulbs, signifying his status as the gardener's Saint.

The Bakers will be happy to tell any interested person where reproductions of the small statue may be obtained. Drop them a card or come to the nursery which is closed only on Mondays.



## QUESTIONS and ANSWERS

Conducted by  
HARRY JOHNSON  
Paramount, Calif.



*Question:* Please clarify the confusion around *Rochea* and *Crassula* and *Bryophyllum* and *Kalanchoe*.

MARJORIE WIHTOL, N.J.

*Answer:* *Rochea* and *Crassula* are differentiated by the gamopetalous corolla of *Rochea* as against the free petals of *Crassula*. Thus our old friend *Rochea falcata* is really *Crassula falcata* and *Crassula coccinea* is really *Rochea coccinea*. Unfortunately these old names are so firmly embedded in literature that to change them often confuses more than it clarifies. The differences between *Bryophyllum* and *Kalanchoe* are also simple and easily observed. *Bryophyllum* flowers are pendant or hanging. Both calyx and corolla are 4-partite and are gamophyllous, tubular and often inflated. The eight stamens are inserted at the base of the corolla. The colors of the calyx and corolla are often much alike, generally a subdued pink or red. The name comes from bryo, to sprout, and phyllon, a leaf. Most, if not all, are native to Madagascar, though *B. pinnatum* is naturalized throughout the tropics of the world. About twenty species are known. In *Kalanchoe*, the flowers are upright, not drooping; 4-partite, the sepals free the corolla united into a tube with short, free, often reflexed tips. The eight stamens are inserted at or above the middle. Plantlets not normally produced on the leaves. The name is an adaptation from the Chinese name of one species. There are more than 200 species distributed in the tropics or sub-tropics of Africa, Madagascar, Arabia, India, China, to the Malay peninsula, with one species in tropical America.

Mrs. Wihtol's questions are of interest as they are so often asked. The delineation above of the four genera actually does not really get to the heart of the basic cause of the confusion, which is that authorities disagree as to whether *Rochea* should stand as a genus or be included in *Crassula* or whether or not to include *Bryophyllum* in *Kalanchoe*. Most American authorities are inclined to include them, the differences not being enough to merit generic status. However, there are two widely divergent viewpoints about the classification of plants. One group looks for the similarities, the other looks for the differences. This leads to the two philosophical approaches to classification, whether to reduce the number of genera and species, or to increase it. Both ap-

proaches can be pushed to the point of being ridiculous, though the weight of authority is increasingly toward the conservative side of reduction. These are problems that possibly never can be settled in our present state of knowledge or as long as human beings are allowed to think for themselves.

*Question:* In my greenhouse, I have three large plants of *Hylocereus undatus*; they are all 6-year old rooted cuts from the same plant. They are all planted in benches; one is in full sun in sandy soil with plenty of root-room; one is in partial sun crowded in with *Bougainvillea* and other flowering tropicals where it gets lots of water and root competition; and the third is in rich humus in deep shade among ferns and begonias. Number one has twelve buds; number two has five; and number three has one. My question is: Why are they all opening tonight? These plants bloom two or three times during late summer and always simultaneously in spite of the differences in culture. *Epiphyllum oxypetalum* does the same.

MARJORIE WIHTOL, N.J.

*Answer:* So far as I know, there has been no scientific explanation of why certain plants have this peculiarity. It has interested me for a great many years. As a young man some forty years ago in Guatemala, I noticed it in a common orchid *Sobralia macrantha*. On horseback one could ride for hours, and every plant would be in bloom. Next day you could not find one. In *Echinopsis*, each species has its day when all over a large area will be in bloom. Some other genera of cacti are the same. In 1948 I was in Ecuador, and went down to Santo Domingo de los Colorados to visit the Indians on the Rio Blanco. It was a hot, wet day and there were tens of thousands of blossoms of *Sobralias*—every plant apparently in bloom. Probably it is to insure fertilization by insects, and I am sure that some particular insect pollinizes that particular species and that on that flowering day the insect will be there waiting to do the job. However, just what triggers the flowering I have not the faintest inkling. It goes back, of course, weeks before the flowers open, but when plants are grown under very diverse conditions and still continue to flower on the same day, a lot of suppositions are ruled out.

*Question:* This relates to the genus *Rebutia*. During the past few years I have purchased practically all the species of *Rebutia* I have been offered. I have lost a relatively large number of them. They are kept in a greenhouse which has 5 openings for ventilation. Winter temperatures 68°-70°. In these hot Texas summers the plants are watered once a week, in winter very little water. Soil ½ coarse sand, ½ black alkaline

native soil plus charcoal, powdered sterilized manure, and bonemeal. Most plants are lost in early fall and early spring. Roots are sound, but appear not to have taken hold, body has appearance of brown dry rot. Oddly enough, I have very good luck with some of the more difficult genera, including collected plants from Texas, Arizona and Mexico.

*Answer:* South American cacti in most cases grow under very different conditions than North American cacti. I saw few of them growing in alkaline places. A great many are mountain species, and seem to prefer neutral soils. Also the great summer heat of our deserts I failed to encounter except in a few places in Northern Peru. Many grow where it very seldom rains, though the fog may be very dense and wet. Rebutias are mostly mountain species, some from very high elevations. They come mostly from Bolivia and the Andes of Argentina. In cultivation they do best in a cool climate, although our southern California summers and fall are not particularly cool. They resent alkaline soils, but do well in sandy loams that do not get hard when dry and seem to like oak leafmold and redwood planing mill shavings. Personally, I do not like cow manure, particularly when heat treated, in any of my cactus or succulent soil mixes. The leafmold and redwood shavings come through heat sterilization without detrimental effect on the plants. Pine shavings, when heat sterilized in mixes, seem to have a deadly effect on plants.

Winter temperatures should be kept rather low, 50° seems to be about right, though they will endure much lower temperatures without any ill effect and often seem to flower much better. In summer, unless the humidity is high, they like some shade and, in warm regions, to be kept in a cool place rather than the hottest. The plants are of two root types; fibrous and tuberos or semi-tuberos. The fibrous rooted species are softer, more succulent plants, and should not be allowed to become dessicated. *Rebutia minuscula* is an extreme example of this

group. The more tuberous rooted species of which *Rebutia nigricans* is an example, should be watered less, and require more light particularly to flower them well. They are close to *Lobivia* and at various times some species have been included in *Lobivia*. Some new genera have been set up such as *Aylosteria* and *Mediolobivia*, to take care of the aberrant species.



Fig. 104  
A two-year graft of *Wilcoxia poselgeri* on an *opuntia*. Picture shows 163 flowers. Grown by Charles Tew of Austin, Texas.



Fig. 105  
Views of Mildred Wellbaum lath-house and greenhouse in Mulino, Oregon. She has 81 species of *Euphorbias*, and 77 *Stapeliads*.



First prize at the State Fair was won by the five months old Sacramento Cactus and Succulent Society. The exhibit was divided into cacti on the left and succulents on the right.

#### LIBRARY

The privilege of borrowing books from the Library of the Society is restricted to the members living in the United States.

Rules for borrowing books:

Any infraction of these rules will be sufficient cause for the librarian to refuse to loan further books to the borrower who committed the infraction.

1. A borrower must be a member in good standing of the Cactus and Succulent Society of America.

2. Only one book may be borrowed at any one time and no further books will be loaned until the previous book has been returned to the Librarian.

3. When the Librarian ships a book to a borrower it will be correctly packed and the borrower must be sure that the book is as carefully and as correctly packed when returned to the Librarian.

4. All books sent by the Librarian to borrowers will be insured to the value of the book. When returning the books, the borrower must place a like amount of insurance on the book.

5. When the borrower returns a book a sufficient amount of money must be enclosed to cover the cost of postage and insurance from the Librarian to the borrower.

6. Books are loaned for a period of five weeks, from the time the book is shipped to the time the book must be back. Members holding books for more than this time will be charged late fees at the rate of 10¢ per day additional.

7. Any damage to a borrowed book, for which the borrower was responsible, will be charged for at the cost of repair and the borrower will be billed for the amount.

8. Additional charge of 25¢ to borrowers to cover cost of mailing material such as mailing labels, paper, cord or mailing bags with each borrowed book to help add more books for borrowers in the future.

The following list of books are available for loan at this time:

Stapeliae, 1933—White & Sloan  
Arizona Cacti, 1933—Stockwell & Brazeale  
Colorado Cacti, 1940—Boissevain & Davidson

California Cacti, 1935—Baxter  
Trees and Shrubs of Mexico—pt. 4 Standley  
Cacti for the Amateur—Haselton  
Glossary of Succulent Plant Terms—Marshall & Woods

Cactus Book—Houghton  
The Cactus and Its Home—Shreve  
Cactus Culture—Schulz  
Flowers of the Desert—Day  
Cacti and Other Succulents of the Santa Barbara Region—Hoffman & Orpet  
Cactus Growing for Beginners—Vera Higgins  
Succulent Plants of New and Old World Deserts—Alexander  
A Contribution for a Better Understanding of Xerophytic Plants—Marshall  
Cacti and Succulents and How to Grow Them—Haselton  
Cacti in the Home—Shreve  
Personal Tale of a Cactus Collector—Gates  
Succulents for the Amateur—Brown, White, Sloan and Reynolds  
Librarian—Mrs. Orva Bokarica, 1496 Cheviotdale Dr., Pasadena, Calif.

#### A NEW PEDIOCACTUS

*Pediocactus knowltonii* L. Benson, sp. nov. Globosobovatus, 2-4 cm. longus, 1.5-2 cm. diametro, mamilliferus, base turbinatus; areolis ovato-lanceolatis; aculeis centralibus 0; aculeis radialibus 18-23, recurvatis, 1-1.4 mm. longis, puberulis albidis. Type specimen: Los Piños River near La Boca, Colorado, on the Colorado-New Mexico line, Fred G. Knowlton, late May, 1958. *Herbarium of Pomona College* No. 288,314. Publication validated here by request; full publication, illustration, and a revision of *Pediocactus* to follow in the March number of the *Journal*. LYMAN BENSON, Pomona College.

#### DO YOU KNOW

That "Semesan" the disinfectant for damping off and for dipping cuttings, is still available? It is manufactured by E. I. Du Pont de Nemours & Co., Wilmington, Delaware. This is a very old product and now comes in powder form in a tube.

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Address changes are a serious problem to your Editor. Please cooperate and send the change of address by the first of the month, otherwise we will have to make a change of 50c for return postage and remailing another copy.



